

**REMARKS**

By this Supplemental Amendment, Applicants clarify the amendments to new independent claims 133-135 in the Amendment filed on July 2, 2010. Applicants also add new independent claim 136. Applicants respectfully request that the claims presented in this Supplemental Amendment replace the claims presented in the Amendment filed on July 2, 2010, prior to further examination.

In the Final Office Action<sup>1</sup>, the Examiner objected to claims 57-68, 79-90, and 110-121; and rejected claims 54-132 under 35 U.S.C. § 103(a) as being unpatentable over *Rheinhardt* (U.S. Patent No. 6,601,625) in view of *Vaughn* (U.S. Patent No. 1,993,814) and further in view of *Alonso et al.* (U.S. Patent No. 6,533,010).

In this Amendment, Applicants amend claims 54, 57-68, 76, 79-90, 107, and 110-121, and add new claims 133-136. Upon entry of this Amendment, claims 54-136 will be pending. Of these claims, claims 54, 76, 107, and 133-136 are independent.

The originally-filed specification, claims, abstract, and drawings fully support the amendments to claims 54, 57-68, 76, 79-90, 107, and 110-121, and the addition of new claims 133-136. No new matter has been introduced.

Based on the foregoing amendments, Applicants traverse the objection and rejection above and respectfully request reconsideration for at least the reasons that follow.

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<sup>1</sup> The Final Office Action contains characterizations of the claims and the related art with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Final Office Action.

## I. OBJECTIONS TO THE CLAIMS

Claims 57-68, 79-90, and 110-121 stand objected to because allegedly, “the phrase beginning with ‘with respect to...’ should be removed, due to the fact that this phrase is redundant.” (*Final Office Action*, p. 2, para. 1). Applicants submit that the objection to claims 57-68, 79-90, and 110-121 has been rendered moot by the amendments to those claims. Applicants therefore request that the objections to claims 57-68, 79-90, and 110-121 be withdrawn.

## II. 35 U.S.C. § 103(a) REJECTION

Applicants respectfully traverse the Examiner’s rejection of claims 54-132 under 35 U.S.C. § 103(a) as being unpatentable over *Rheinhardt* in view of *Vaughn*, and further in view of *Alonso*. Applicants respectfully disagree with the Examiner’s arguments and conclusions and submit that amended independent claims 54, 76, and 107 patentably distinguish over *Rheinhardt*, *Vaughn*, and *Alonso* at least for the reasons described below.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. See M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007). Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See id. “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention.” M.P.E.P. § 2145. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art” at the time the invention was made. M.P.E.P. § 2143.01(III),

internal citation omitted. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” M.P.E.P. § 2141.02(I), internal citations omitted (emphasis in original).

“[T]he framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). . . . The factual inquiries . . . [include determining the scope and content of the prior art and] . . . [a]scertaining the differences between the claimed invention and the prior art.” M.P.E.P. § 2141(II). “Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.” M.P.E.P. § 2141(III).

Amended independent claim 54, and similarly amended independent claims 76 and 107, recite a method of controlling an inner pressure of a tyre mounted on a rim, the method comprising the steps of: “bringing [an] inner volume of said tyre into communication with [a] tank when the pressure of the inner volume of said tyre is lower than [an] operating pressure, by means of at least one mechanical valve, the at least one mechanical valve including: a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the at least one mechanical valve and being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve, . . . wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act

against the needle, thereby causing the at least one non-deformable closure member to open and close the at least one port."

*Rheinhardt* appears to disclose an apparatus that mounts on a rim of a vehicle wheel on which a tire may be mounted. The apparatus includes a high pressure reservoir for receiving and storing compressed air from an outside source, a first mechanical valve that permits compressed air from an outside source to be directed into and stored in the high pressure reservoir, a second mechanical valve that directs air from the high pressure reservoir into the air chamber of a tire, a third mechanical valve that releases air from the air chamber of the tire, and a fourth mechanical valve that releases air from the high pressure reservoir. (*Rheinhardt*, Abstract).

As admitted by the Examiner, "*Rheinhardt*, however, does not disclose the valve having an elastic element therein with an elastic constant that varies with temperature." (*Final Office Action*, p. 2, para. 3). *Rheinhardt* also fails to teach or suggest, "the at least one mechanical valve including: a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the at least one mechanical valve and being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve, . . . wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act against the needle, thereby causing the at least one non-deformable closure member to open and close the at least one port."

To cure the deficiencies of *Rheinhardt*, the Examiner relies on *Vaughn* and *Alonso* and asserts, "*Vaughn* teaches the use of a valve including two concentrically arranged springs (16 and 20), wherein spring 16 is an elastic element responsive to

temperature" (*Final Office Action*, p. 2, para. 3); and "Alonso et al teaches the use of a valve 70 including an elastic element whose elastic constant varies within a temperature range of -1 to +49 degrees C" (*Id.* at p. 3, ll. 13-14).

Such teachings, even if present in *Vaughn* and *Alonso*, which Applicants do not necessarily concede, however, fail to teach or suggest, "the at least one mechanical valve including: a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the at least one mechanical valve and being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve, . . . wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act against the needle, thereby causing the at least one non-deformable closure member to open and close the at least one port," as recited in amended independent claim 54, and similarly amended independent claims 76 and 107.

*Vaughn* appears to disclose thermostatic devices for automatically controlling the temperature of water heaters and the like which are heated by gaseous fuels. (*Vaughn*, p. 1, col. 1, ll. 6-9). A valve body 1 includes a valve seat 5, where the "valve seat . . . form[s] two opposing annular abutment members between which the edge of a concavo-convex snap disk or valve member 16 is actuated from one abutment member to the other in opening and closing the valve." (*Id.* at p. 1, col. 2, ll. 33-38). *Vaughn* further discloses a "heavy compression spring 20 acting between a collar 18 on the upper end of the valve stem and a second adjustable plug 19 screwed in the upper end of the hollow plug 14." (*Id.* at p. 2, col. 1, ll. 4-6).

*Vaughn*, however, fails to teach or suggest, “the at least one mechanical valve including: a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the at least one mechanical valve and being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve, . . . wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act against the needle, thereby causing the at least one non-deformable closure member to open and close the at least one port.”

First, *Vaughn* fails to disclose the valve including a diaphragm, a cap, and a needle. Second, the valve member 16, which the Examiner alleges is equivalent to the claimed “elastic element,” does not and cannot exert a pressure on a diaphragm which brings a cap to act against a needle, thereby causing the plunger 10 and the lower end 11 of the valve stem 12, which the Examiner alleges are equivalent to the claimed “non-deformable closure member,” to open and close at least one port in the valve.

*Alonso* appears to disclose an air pressure regulating system mounted within a wheel and tire assembly. It primarily includes a temperature sensor and a compressor assembly having a compression chamber and valves. (*Alonso*, Abstract). *Alonso* further discloses, “[a]s temperature sensor 70 expands and contracts, it changes the volume in compression chamber 56 . . . The expansion and contraction of temperature sensor 70 achieve predetermined air pressure . . . Temperature sensor 70 hermetically house matter such as a liquid, which expands, or contracts, based on temperature changes.” (*Id.* at col. 4, ll. 38-56).

*Alonso*, however, fails to teach or suggest, "the at least one mechanical valve including: a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the at least one mechanical valve and being operatively associated with at least one non-deformable closure member designed to open and close at least one port in said valve, . . . wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act against the needle, thereby causing the at least one non-deformable closure member to open and close the at least one port."

The temperature sensor 70, which the Examiner alleges is equivalent to the claimed "valve," does not include a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the temperature sensor 70 and being operatively associated with at least one non-deformable closure member designed to open and close at least one port in the temperature sensor 70, wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act against the needle, thereby causing the at least one non-deformable closure member to open and close at least one port in the temperature sensor 70.

Accordingly, with respect to amended independent claim 54, and similarly amended independent claims 76 and 107, *Rheinhardt, Vaughn*, and *Alonso* fail to teach Applicants' claimed combination, including, *inter alia*:

the at least one mechanical valve including: a diaphragm, a cap, a needle, and an elastic element having an elastic constant, the elastic element controlling the opening of the at least one mechanical valve and being operatively associated with at least one non-deformable closure member designed

to open and close at least one port in said valve, . . . wherein the elastic element exerts a pressure on the diaphragm which brings the cap to act against the needle, thereby causing the at least one non-deformable closure member to open and close the at least one port.

As explained above, the elements of independent claims 54, 76, and 107 are neither taught nor suggested by the cited reference. Consequently, the Final Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, no reason has been clearly articulated as to why the claims would have been obvious to one of ordinary skill in view of the prior art. Therefore, a *prima facie* case of obviousness has not been established for independent claims 54, 76, and 107. Claims 54, 76, and 107, and claims 55-75, 77-106, and 108-132 that correspondingly depend from claims 54, 76, and 107, are therefore patentable over *Rheinhardt, Vaughn, and Alonso*. Applicants therefore request that the rejection of claims 54-132 under 35 U.S.C. § 103(a) be withdrawn.

### III. NEW CLAIMS

New independent claims 133-136, though of different scope from independent claims 54, 76, and 107, are allowable to reasons similar to those set forth above with respect to claims 54, 76, and 107. Specifically, new independent claims 133-136 recite the limitations of independent claim 54 in combination with the following in pertinent part: "wherein a ratio between said operating pressure of the tyre and said first pressure in said tank is about 0.1 to about 0.6" (claim 133); "wherein said step of bringing the inner volume of said tyre into communication with said tank takes place when the pressure of the inner volume of said tyre is lower than said operating pressure

by at least 5%" (claim 134); and "wherein the elastic element is a spring, wherein the elastic element comprises a second spring operatively associated with the spring, and wherein a load supported by the second spring is about 60% to about 95% of a load supported by the elastic element" (claims 135 and 136). Claims 133-136 are therefore allowable for at least the reasons presented above.

#### **IV. CONCLUSION**

Applicants respectfully submit that claims 54-136 are in condition for allowance.

In view of the foregoing, Applicants respectfully request reconsideration and reexamination of this application, and the timely allowance of the pending claims.

Please feel free to contact Bruce C. Zotter at 202-408-4094 to schedule a telephone conference in order to expedite prosecution of the above-identified application.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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Dated: July 7, 2010

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